

**GEOLOGY / SOIL SCIENCE 496
DEATH VALLEY FIELD COURSE
SPRING SEMESTER, 2007**

INSTRUCTIONS FOR STUDENT PROJECTS

Your final course grade for Geology/Soil Science 496 will be based on: 1) your participation in all aspects of the field trip; 2) the quality of a field notebook of observations to be maintained by you during the trip; and 3) your project, as presented both as a contribution to the field text and as an oral presentation in the field.

Regarding this latter aspect, every individual on this trip is expected to contribute some aspect of research and intellectual content toward making the course possible and productive.

For this project, you will volunteer for (or be assigned) a topic related to a geologic or soils stop for the field course. You will then thoroughly research the topic, preparing a contribution as a chapter to the field text. In addition, you will present your topic as a 15 minute field presentation, supported by graphics drawn in multiple colors onto large posters.

Topics will be assigned according to background level in geology or soil science. Beginning students will be given their choice of overview assignments. Advanced students will be given their choice of more geo/soil-specific topics.

Field Text Chapter: A multiple page, typewritten contribution to the guidebook will be prepared by each student. The contribution is to be modeled on those of previous spring field trip guidebooks. The chapter is to be written in your own words and should include an adequate, professional, and even rigorous overview of the assigned topic. It should be supported by graphics, by citations in the text to reference sources, and well presented list of reference sources. References should give author name(s), date, title, journal or book title, and volume/page numbers (G.S.A. format preferred). Pages should be numbered by your chapter number assignment at the bottom center of each page (for example, "Chapter 12" will have pages numbered "12-1," "12-2," etc., at the bottom center of each page).

See the posted example on the hallway bulletin board. Your contribution should be modeled on this, including citation and reference format.

The chapter will be printed back-to-back. For binding, allow 1.3" along the left margin of all odd-numbered pages. Allow 1.3" along the right margin of all even-numbered pages.

For chapters intended to appear only in black-and-white, you need only prepare one, master copy. All expenses in preparing this one copy are your responsibility. I will photocopy all chapter contributions and present copies to the class in 3 punched form for entry into their field binders.

For chapters (or individual pages) that you want to appear in color, the total costs of color reproduction for all pages are yours to cover. The same formatting as above is to be followed.

DEADLINE FOR RECEIPT OF CHAPTERS: 5:00 p.m., Tuesday, February 27th.

Chapters will be distributed at class on Tuesday, March 6th. Bring a 3-ring binder with you to that class.

Field Presentation: Each student will give a 15 minute oral talk on her/his topic at the appropriate field site. The talk will be supported both by graphics within the chapter as well as by graphics neatly sketched in advance onto large poster(s). The talk should be well rehearsed and professional. Time will be allowed at the end of each presentation for questions. Students should prepare their posters well in advance of departure. Students are responsible for the safe transport of their own presentation materials.

Potential Topics: Unless otherwise indicated, the project titles (attached) are available on a first-come, first-served basis. I'll post the name of the "claimant" next to each topic on the course web site. Watch the course site for constant updates.

The attached list is not intended to be exhaustive. There's plenty of geology to view during the trip(!), and so if you'd like to propose another topic (or a more specific topic), see DPS.

To claim a project, contact D.P. Schwert, NDSU Geosciences. I am reserving the "easier" topics for intro students.

The NDSU Libraries should be an immediate place for help. Jeremy Brown (jeremy.brown@ndsu.edu) is the Physical Sciences Librarian and will be a resource to you. A good starting point for literature searches is GeoRef, available on-line from any NDSU cluster computer. Go to the Library homepage, click on "Databases" (top set of links), then go to "Databases" "By Subject" "Geosciences".

The journal Earth-Science Reviews has an entire special issue (Volume 73, 2005) on Death Valley geology. This journal is electronically accessible from an NDSU campus cluster machine via the NDSU Libraries web site. Go to E-Journals, and continue on from there.

Former NDSU Librarian Lura Joseph maintains a web site on Death Valley resources, which you should find useful:

www.library.uiuc.edu/gex/bibs/deathvalley.html

Citation and reference format for each chapter is to strictly following the format of the Geological Society of America publications (see any G.S.A. journal or book for examples

POTENTIAL CHAPTER TITLES

* Suitable for non-major or first-year major

Some of these topics are broad, and suitable for two presentors as “dynamic duo’s”

- Tectonic setting/history of Death Valley
- Mineralogy of gold occurrences in Death Valley
- Turtlebacks (*I'll do this one, unless someone else really wants to --- DPS*)
- Mylonitic fabrics of the Badwater Turtleback
- Geometry of alluvial fans*
- Mass movement in semi-arid regions*
- Seismic activity in the Death Valley region*
- Mineralogy of gold occurrences in Death Valley
- Evaporite mineralogies and occurrences in Death Valley*
- Eolian landforms of Death Valley*
- Pleistocene lake history of Death Valley*
- Pupfish, and their biogeographic relevance to Pleistocene history in the western U.S.*
- Desert varnish*
- The Noonday Dolomite, and its relevance to “Snowball Earth”
- Geology of maars, as exemplified by Ubehebe Crater
- Geology of mudcracks: description, mechanics, occurrence*
- Sliding boulders at Racetrack Playa*
- The paleontological setting of Death Valley National Park
- Armagosa Chaos
- Geology of Yucca Mountain
- Packrat middens and their usefulness in paleoclimatological studies*
- Significance of the isotopic record in sediments of Death Valley and adjacent basins
- Petrocalcic soils: origins and significance
- Hard rock pedology: silica cemented soils of arid regions --- *David Hopkins(?)*